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ABSTRACT

According to the cognitive development theory of Lev Vygotsky, learning is formed, and thinking is transformed as a result of participation in purposeful activity with others. Through joint activity, social problem solving is learned and eventually internalized into intrapsychological processes. This paper describes an experimental teacher education program that is an application of principles representing Vygotskian theoretical themes. The guiding principles are described and supported with quotes from observational and interview data to present a model of teaching, performance assistance. The program supports the model by proposing reorganized interactional teaching activity to assist rather than assess student performance. A preservice teacher's case of early teaching practice is discussed to demonstrate: (1) how this reorganization of interaction and thinking transforms preservice teacher thinking; and (2) how institutional demands on the teacher can come into conflict with these transformations in practice. (JD)

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Teachers As Assessors and Assistors

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Abstract

This paper describes an experimental teacher education program that is an application of principles representing Vygotskian theoretical themes. The guiding principles are described and supported with quotive material from observational and interview data to present a model of teaching, performance assistance. The program supports the model by proposing reorganizing interactional teaching activity to assist rather than assess student performance. A pre-service teacher's case of early teaching practice is discussed to demonstrate 1) how this reorganization of interaction and thinking transforms pre-service teacher thinking, and 2) how institutional demands on the teacher can come into conflict with these transformations in practice.

Introduction

The cognitive developmental theory associated with the name of Lev Vygotsky is having a profound impact on our understanding of the teaching-learning process. We are now more sensitive to the ways that teachers assist students through their zones of proximal development, and the ways that students gradually acquire cognitive competencies through social interaction with their teachers and with each other.

However, little attention has yet been paid to the cognitive and performance development of teachers themselves. The development of professional cognitions and professional skills of teachers can be understood by these same Vygotskian principles; as students learn in interaction with their teachers, those teachers learn in interaction with their faculties and in their early classroom experiences.

This paper discusses transformations in the thinking of teachers. It presents a set of observations of elementary teachers who were on a developmental course from novice to skilled through their participation in experimental teacher education programs*. In these programs, based on Vygotskian principles, the teachers were learning to reorganize their classroom interactions to more fully incorporate the interests and insights of students. This discussion is based on insights provided by developmental analysis of observational and interview data of the pre-service teachers and experienced teachers in these programs.

The two Vygotskian theoretical themes influencing the experimental pre-service teacher education program are social formation of learning and developmental analysis. According to Vygotsky, learning is formed, and thinking is transformed as a result of participation in purposeful activity with others. That is, through joint activity, social problem solving is learned and eventually internalized into intrapsychological processes. Through joint social activity and its consequences,

humans acquire the means by which they can affect their world; control their own reactions; and achieve independence.

During classroom interactions, teachers participate in social activities forming their students' thinking. Au and Kawakami (1984) studied reading lessons in light of Vygotsky's theory. They speculated that the positive effect of KEEP^ reading lessons on students' reading achievement related to teacher and student group processes. The effect of KEEP teacher led group interaction was to transform reading comprehension skills from an external and interpsychological function into an internal and individual or intrapsychological function. According to Au and Kawakami (op. cit.), teachers assisting performance in this manner are effecting students' mastery level or independence. Teacher performance that assists students to independence is based on teacher understanding of students' thinking structures. Vygotsky refers to these thinking structures that are still in the process of formation (through the assistance of others) as zones of proximal development (ZPD).

Teachers' own cognitive and performance development can be studied in terms of their ZPDs. Pre-service teachers participate in social activities of their program coursework progressing from an external, interpsychological level of functioning towards an internal, intrapsychological level of functioning through their classroom applications and practice designing and leading social activities. Teachers acquire the means by which they can assist their students' performance simultaneously transforming their own thinking and professional performance.

Vygotsky wrote that developmental analysis is the appropriate method for the study of thinking. Developmental analysis studies the origins and transitions of thinking, and assumes that humans actively participate in their own social and cognitive development. Developmental analysis of natural growth patterns formed by participation in social activity, including critical disruptions and tensions, can reveal transformations in thinking. This report examines teachers' progress through their

interview reports of the tensions and disruptions, and the irregular but advancing pattern of professional thinking and performance competence.

Developing Teacher Competence

Pre-service teachers take their first teaching steps by preparing learning objectives and practicing organizations of classroom social activity related to them. One pre-service teacher describes the task, "I'm trying to pay attention to what they're saying and also trying to keep in mind what I wanted them to do there."# This pre-service teacher grasps the parts of her complex task and is struggling to organize the parts into a workable whole. She strives to be sensitive to student experience; responsive to student production. At the same time, how can she achieve her lesson objectives?

In addition, the program faculty urges the pre-service teacher to reorganize her thinking during lessons. This means transforming thinking from using everyday concepts to making applications of newly-learned professional concepts. In another pre-service teacher's description of her early experience, she indicates her understanding of coursework conceptual and pedagogical material, that is, planning what content to build into a lesson and how to apply instructional strategies. Her awakening to the challenge of the task, however, is associated with the social conditions of her teaching activity.

> "Sometimes, too, when you're told things and when you actually do it, it comes out different. That's what I'm finding out, too. They cannot always be done like how (you're told in courses) or there isn't any one best way to do something. Sometimes, too, it just depends on the situation and what's going on. It's really hard."

Although she arranged her teaching activities according to coursework guidelines and recommendations, the pre-service teacher found that the "situation" or the social conditions of teaching compounded the challenge. Her insight spotlights the complicated dynamics of lesson interaction in which novices practice applications of their newly acquired professional concepts. Such occasions of purposeful social activity, in Vygotsky's conception, are the basis for forming and transforming thinking. For this pre-service teacher, her increased awareness was the appropriate foundation for her continued development in a teacher education program based on Vygotskian principles of learning.

Principles Guiding Teacher Education

Vygotsky wrote that through social activity and its consequences, humans can acquire the means to affect their world and master their responses. Following this theoretical theme that learning is socially formed, the program's implementation is guided by three principles of teaching. The principles influenced the development of the program's teacher education coursework and the arrangements for classroom social activity in the field experience.

The principles operate both at the levels of teacher education coursework, and field experience in elementary classrooms. The program attempts to model the three principles at each level of implementation.

The three principles are:

1) teachers arrange activities,

2) teachers adjust instruction., and

3) teachers assist performance

The first principle, teachers arrange activities, emphasizes that teacher education programs and teachers provide the conditions for social activity which

facilitate teaching and learning. The second principle, teachers adjust instruction, accents teaching that is compatible with students' preferred styles of thinking, speaking, organizing, and motivation. The third principle, teachers assist performance, stresses teacher responsibility for the actual performance of students. Teachers who assist performance construct lessons in part out of student experiences and expressions, rather than relying completely on preplanned teaching scripts. Teaching that assists performance is characterized by two Vygotskian notions, developing teacher student intersubjectivity and teachers guiding students through their zones of proximal development (ZPD).

According to the first principle, teachers arrange activities that provide the occasion for joint activity between teacher and students in school and classroom settings. Joint activity implies purpose and involves collaborative interaction stimulating student motivation and teacher student sharing. These conditions can produce increased interpersonal understanding between teacher and students which Vygotsky has described as intersubjectivity. Tharp and Gallimore refer to this form of social activity "in which collaborative interaction, intersubjectivity and assisted performance occur" as "activity settings" (Tharp and Gallimore, 1988, p. 72).

Activity settings may be planned for large, medium, or small groups, and in a variety of patterns of social organizations. Teachers arrange activity settings around an infinite assortment of activities such as cooking recipes, art expression, manipulatives and games, writing, math, science, social studies, but, most frequently activity settings involve reading and discussing text material, and then engaging in activities that flow from that text and discussion.

A pre-service teacher described the social arrangements, relevant background information and her objectives in an activity setting she arranged.

> "I have a medium size group, I believe there's four boys and four girls, that's eight children. This is the second time I've been with the group and the first lesson had been on a different focus, geometric shapes and this is the first time I'm working with them on doing graphing. And this is going to be the first lesson of two lessons. So, what I wanted to do was start basing it in the concrete level and then moving towards the abstract."

Continuing, she recounted her larger goal in arranging this activity setting:

> "I think in the back of my mind because you have to pay attention to the group and if you don't have the group with you even if you have a great lesson, you're going to miss if they're not at the chair or at the table listening to you. . . .I was concerned with the lesson and staying with the children.

She measured success in her lesson by her ability to develop relationships with the students that motivated and stimulated them to participate. By their active participation and her "staying with the children," she could ascertain the quality of their emergent understandings and their progress together toward lesson goals. She wanted to increase interpersonal understanding between herself and her students which, in an activity setting, is creating a condition referred to by Vygotsky as intersubjectivity.

In the experimental teacher education program, the faculty takes a parallel role with their students (who are the intending teachers). And the principles are the same: the faculty arranges activity settings for pre-service teachers, both in the program coursework, and through the field experience. In the field experience,

activities with elementary students are carefully arranged, so that the pre-service teachers can practice combining their everyday style of participation and discourse with their emerging competency in professional discourse.

A pre-service teacher described how a program activity setting (a generic methods course) influenced her thinking about arranging the activities of her early teaching. She described applying a concept from the methods course in a related activity setting, a required lesson assignment.

> "I think the point really hit home when we had the math module of children needing a hands-on or a visual type of thing for them to really grasp an understanding of something. So, that was the reason for developing it (the manipulative she used in her lesson). So the interaction and their focus was there because of this visual. It really helped them."

Her success in teaching strongly reinforced the abstract learning provided in the coursework. The application of the concept in the activity of teaching allowed her to assimilate the concept and to develop actual performance competence. The program strives to arrange activity settings in which professional thinking and performance competence can develop together.

The second principle guiding the program is teachers adjust instruction. The principle means that teachers adjust instruction for compatibility with their students' preferred styles of thinking, speaking, organizing and motivation which arise from their social background and experience. Increasing compatibility of classroom and student styles means arranging activity settings and adjusting instruction to take advantage of patterns of social interaction and participation familiar to students. In program coursework, pre-service teachers learn inquiry and problem solving

strategies for developing compatible classroom activity settings. A pre-service teacher explained how she began to think about adjusting instruction:

> "I don't think I really thought too much about the kind of preparation and the time it would take to do research and to absorb it and understand it enough to teach it to someone, to break it down into steps. That, I kind of had a hard time adjusting to, the students' need, and how you can better move them to the point, more guided."

In her teaching, she learned the difficult nature of this principle. Actual practice in an activity setting revealed the complicated preparations that support instructional adjustments. Her comments alluded to the continuing challenge of this principle for teachers continuously adjusting their teaching to meet the needs of diverse and changing student populations.

She described how she adjusted her instruction to accommodate a 'talk story' style of student participation based on information provided by her coursework. In this style of participation, students did not raise their hands for permission to speak during the lesson, but spoke in more open, conversational turn-taking.

> "I wanted them to feel more comfortable and freer. Cause I know in a large group that they have to raise their hands it's really, ah! You have to wait to be recognized, they feel not as free and they don't interact as much. I think they feel more comfortable to contribute more and their ideas seem to flow better and come out a lot quicker and easier."

The pre-service teacher was committed to developing a climate in her activity setting that was sensitive to student participation preferences and comfort level. She effectively combined affective and cognitive goals. She found that by adjusting her instructional practices to take advantage of patterns familiar and comfortable for the students, she reduced the complexity of the learning task and increased her students' participation level.

She described her increased sensitivity to students' feelings, "I think I'm just trying so hard to be positive that it's real hard for me to (give a) desist (scold). And I don't want to discourage the children or make them feel real bad about themselves or their behavior." The awareness and sensitivity that this pre-service teacher displayed and her active intentions to adjust her instruction increased the potential for collaborative interaction resulting in intersubjectivity to become features of her teaching. These features support the next principle as well.

The third principle, teachers assist performance, means that teachers recognize and respond to students' thinking and understanding. In the activity settings of field experience, pre-service teachers assist elementary students' performance through lesson discourse that elicits and incorporates student experiences and expressions.

In this principle, the previous principles are nested. That is, teachers who are performance assistors arrange activity settings and adjust instruction for compatibility with students' preferred learning styles. For example, small group activity settings with low teacher/student ratios and physical proximity allow sustained, attentive interaction that nurtures developing teachers' and students' common understandings, language, shared beliefs and values. Small group interactions can produce intersubjectivity, the foundation for assisting performance.

Pre-service teachers are typically surprised by the complex demands placed on them by teaching that is characterized by performance assistance. After all, social

interaction that assists performance resembles ordinary conversation, and has the effect of reducing interpersonal distance and formality, and increasing interpersonal respect and understanding. But what appears on the surface to be a warm, informal social exchange is, in fact, a highly complex professional performance. A pre-service teacher reports, "I didn't expect all that planning and all that background thinking that you have to think of: where the student is at and how you go about teaching a lesson. It's still overwhelming!"

In learning to assist performance, pre-service teachers are expected to demonstrate sensitivity to students' prior knowledge and to try to incorporate students' experiences in the lesson construction while applying new concepts from their coursework. In describing her early efforts to assist performance, one pre-service teacher practicing in a kindergarten classroom said,

> "That was just counting numbers cause you start with the concrete experience and I just wanted to show them that. That's from our Methods, right, where you use concrete experience and you use your fingers and you count, it's

She explained applying a methods course concept in her lesson that supports the principle of performance assistance. She purposefully began the lesson by validating and using student experience to encourage their participation level and the development of interpersonal understanding.

Teachers experienced in performance assistance describe in their statements their own transformations. They contrast what they do now against their previous teaching, which was a model of teaching that has been labelled "scripted," recitation," "didactic" and "assessor," among others. The "assessor" model consists predominantly of assigning students' some form of text, and then assessing student

performance. In other words, teachers tell, direct and check; they assign and assess. As described by one experienced teacher, "All I used to do was follow a manual so there was really no interaction. I never got ideas from the kids. The kids just had to listen to me." There is distance between teacher and student that prevents the development of common understandings. This teacher assessed student performance solely on the criteria of a nonreciprocating authority, herself.

Assisting performance that is responsive teaching is a different thing. Teachers who provide performance assistance interact familiarly with students. They share experience, and actively listen; they react sensitively and purposefully to what they hear. Responsive teaching builds intersubjectivity between teacher and student, so that common understanding and assistance are inseparable elements, rising or falling together. One teacher described her present responsive teaching: "I feel I can now expand spontaneously on my own from the children's responses, I can continue questions. Now I enjoy teaching."

Another teacher describes performance assistance this way. "I just listen to what they're saying and from where they are coming. Sometimes, you know, it's amazing (that they won't have experiences that I expect them to have). So, I say, just forget the story (for now) and let's discuss this." In this example, the teacher reported noticing a discrepancy between student performance and teacher expectation. She immediately responded to her students' need for assistance. Both teachers reduced the distance between themselves and their students by constructing lessons from common understandings of each others' experience and ideas. This is the foundation for teaching that goes beyond assessment, and achieves assistance.

Vygotsky wrote that the conditions of joint construction in circumstances of reduced interpersonal distance are ideal not only for assisting performance, but also for increasing intersubjectivity, producing an increased interpersonal understanding among teacher and students. Interpersonal understanding then maximizes the

opportunity for precise performance assistance. Precision in assisting performance means guiding students successfully through their zones of proximal development (ZPD).

Vygotsky described the ZPD as "a tool through which the internal course of development can be understood" (Vygotsky, 1978, p. 87). Teacher's use this "tool" to understand current levels of students' development, and the nature of the assistance she needs to provide them. Assisting student performance through the ZPD relies on teacher understanding of students' connection to the learning task. Such understanding on the part of a teacher can be informed only by careful observation, listening, and interaction with the students themselves.

In combination, the three principles "awaken" and "rouse," in Vygotsky's terms, students' emergent and maturing functions. This vitalized model of teacher as assistor is in contrast to the traditional and predominant model in which teachers act as assessors of student performance. Teachers who assess performance distance themselves from their students. Teachers who assist performance increase interpersonal understanding and generate intersubjectivity. Teaching takes on new meaning, and that meaning is constantly being created in warm, interpersonal and collaborative activity.

One Pre-Service Teacher's Development

Performance assistance is a complex act that itself develops gradually through each aspiring teacher's own ZPD. Helen, a pre-service teacher, discussed one of her first formal lessons in third grade math. She described her interaction with a student about an incomplete assignment.

> "When Debbie gave me hers and she had a step missing, you know, that final (step), I think prior to some of the things I

> learned this year, I may have given it back and said, 'You're missing something, go back and finish it up'. But it kind of lent itself at that time to say, "Come on Debbie, I know you can do this, just do it in your head, tell me what it is." So it became a positive thing for her although she had left out one of my steps I had given her to do, you know, I knew and she knew that she could complete it without any embarrassment to her either."

In this example, the teacher clearly described a shift from assessing to assisting student performance. At this stage, the assistance is rudimentary--it consisted of cheerleading!--but this technical simplicity still reveals a major affective shift. She and the student are allies, and this is the affective element that will eventually produce intersubjectivity.

Later in this same interview, Helen gave another example in this, we see the earliest stages of attending to individual differences and trying to assist different students in different ways. Helen said:

> "That's an interesting thing right there, cause I did exactly an opposite thing than what I had done with Debbie. But that too, I can recall that time being real aware of it that George I knew understood real well, and it's like, he knew how to do this and he had just kinda fooled around about it. Whereas Debbie was a different situation, you know, her ability level was different. I didn't want to kind of put her on the spot in that situation. George was very capable, knew what was going on. If it was a first-time experience with him I

> probably wouldn't have done it because I would be wondering how he would react to something like that. But he and I had a pretty good relationship so I felt pretty confident to how he was going to react to something like that."

Helen was making individual interactional and instructional decisions based on the interpersonal understanding she developed with her students. The condition of intersubjectivity she experienced informed her understanding of students' relationship to the learning task. As a result, Helen could assist the performance of these students.

Constraints on the Advance from Assessment to Assistance

These advances increase program cohesion and intersubjectivity with the pre-service students. But even more interesting may be the "disruptions" and "tensions" in our progress that Vygotsky insisted we also study. When programs and college instructors set curriculum goals, they also set scripts. Some of these requirements of the teacher education curriculum itself can undermine intended program effects.

Again Helen described this tension. In her first formal lesson plan prepared for a methods course teaching assignment she experienced the incompatibility of the methods course requirements and her developing skills in assisting student performance. Her experiences working in elementary classrooms prior to the lesson were tutoring and other informal student interactions.

She described the methods course assignment with its requirements as making her feel that she was, in her words, "scripted." She said:

> "I was very much involved on (with) meeting the objective of my lesson. I didn't feel as open to their feedback, you know. (Before in her previous interactions with students) if we wanted to go on a tangent, fine we could. I didn't feel I had the flexibility in this particular lesson . . . in discussion."

Helen found the constraints on her interaction with the students very distracting. She was distanced from her students and it kept her from teaching responsively. Helen recognized performance assistance which is the most dependent on student contribution and collaborative teacher student interaction as the heart of her teaching. She described the requirements to accomplish specific lesson objectives within a time limit as another impediment.

> And I was aware of the time constraint I had and I knew where I had to get to by the end of the lesson based on what I had scripted. So the time element, the listing of the procedures, what I had written down, I think that's what

Even at this early stage of Helen's development (at the mid-point of her program of studies), she was sensitive to differences in the quality of her own teaching. Helen understood how the two roles of teacher, assessor or assistor, are contrasting if not incompatible. She felt limits on her interaction with the students as a great loss to the point of discomfort.

Helen was gaining confidence about her teaching and her and her comfort level in the assistor model.

> In fact I may have gotten to the same objective without having it scripted like that, I'm not real sure. But I felt I didn't have the flexibility that I have had in other lessons with the children. Because the other time . . . Ann (her host teacher) and I would sketch pretty vaguely where we wanted to go . . . I would report to her where we went , . . . And if we didn't get as far along, that was fine because the discussion with the children would give me an idea of what problems they were having . . . I didn't have a particular point I had to get to, that was real different in this lesson. I hate scripted lessons!"

Helen described creating her own style of performance assistance. She explained how she gained understanding of students' relationships to learning tasks through "discussion" that revealed "what problems they were having." She needed the "flexibility" to accomplish that state of intersubjectivity in which she could assist performance. This was the heartbeat of her teaching.

Certainly the requirements of the methods course were not designed to produce this pre-service teacher's discomfort. But Helen's experience is representative of tension in the pre-service program, a tension between goals for responsiveness and performance assistance and the faculty's felt necessity to schedule activity settings, to insure certain critical experiences, and to cover curriculum material.

Ironically, the entire program has been built on the value of producing teachers who are themselves responsive. Yet we have not fully escaped from the excessively scripted form of teaching by our own faculty. This dilemma well illustrates that no teaching at any level from kindergarten to university will be completely free of tensions between the "assessor" and the "assistor" models until all

levels address the issue. Only if we university faculty members begin to teach by responsively assisting performance at our own level will we resolve this tension. Only if we reform all levels of the educational system will we be able to reconstitute its integrity along a new unity--that of assisting performance.

Notes

* The experienced teachers were recipients of in-service training through the Kamehameha Elementary Education Program (KEEP) in Honolulu. The pre-service teachers were half-way through an experimental pre-service program based on KEEP and Vygotskian principles at the College of Education, University of Hawaii at Manoa.

^Kamehameha Elementary Education Program (KEEP)

The quotations cited are extracted from interviews conducted with teachers in the in-service program (KEEP) and pre-service teachers in the teacher education program (PETOM**).

**The experimental pre-service elementary teacher educatio progam title is Pre-Service Education for Teachers of Minorities (PETOM), College of Education, University of Hawaii at Manoa. it is a cooperative program of the University of Hawaii, Kamehameha Schools/Bishop Estate and the Hawaii State Department of Education and is a task force of the Hawaii School/University Partnership.

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